

REMARKS

Applicants respectfully request consideration of the subject application as amended herein. This Amendment is submitted in response to the Office Action mailed August 14, 2006. Claims 18, 19 and 22 are allowed. Claims 1-15 and 32 have been withdrawn. Claims 16-17, 20-21 and 23-31 are rejected. In this Amendment, Claims 16 and 17 have been amended to more particularly point out and distinctly claim the invention. New claims 33-48 have been added. Claims 33-47 all depend upon allowed claims 18, 19, and 22, and therefore, should also be allowable. Support for the amendment can be found in paragraphs [0016] and [0018], and figure 1, element 194. No new matter has been added. Claims 16-31, and 33-48 are currently pending in the application.

Rejections under 35 U.S.C. § 103

Claims 16, 25-26, and 28-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasebe et al. (U.S. 5,658,615) hereinafter "*Hasebe*". In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Claim 16 relates to a method for coating a surface of a substrate with a polymer solution comprising: securing a substrate to be coated with a polymer solution in a coating chamber having a rotatable chuck, the rotatable chuck to support the substrate; generating a carrier-solvent vapor mixture, wherein a **carrier gas** is **mixed with** a solvent vapor to form the carrier-solvent vapor mixture; **removing excess solvent liquid** that did not get

transformed into the solvent vapor from the region above the substrate within the chamber to form a **reduced droplet** carrier-solvent vapor mixture; **injecting the reduced droplet carrier-solvent vapor mixture into the coating area**, wherein the coating area is saturated with the reduced droplet carrier-solvent vapor mixture; dispensing the polymer solution over a surface of the substrate while the coating chamber is saturated with the carrier-solvent vapor mixture; and rotating the substrate to spread the polymer solution over the surface of the substrate; and wherein the reduced droplet carrier-solvent mixture helps **prevent excess solvent from dropping on the substrate**.

In contrast, Hasebe at least fails to disclose or suggest generating a carrier-solvent vapor mixture, wherein a **carrier gas** is **mixed with** a solvent vapor to form the carrier-solvent vapor mixture; nor **removing excess solvent liquid** that did not get transformed into the solvent vapor from the region above the substrate within the chamber to form a **reduced droplet** carrier-solvent vapor mixture; nor **injecting the reduced droplet carrier-solvent vapor mixture into the coating area**, nor wherein the reduced droplet carrier-solvent mixture helps **prevent excess solvent from dropping on the substrate**. In fact, Hasebe teaches away from **injecting a reduced droplet** carrier-solvent vapor mixture into the coating area, and from **preventing excess solvent from dropping on the substrate**. Column 14, lines 56-61, describe injecting a large amount of solvent, or injecting a solvent **mist** in the enclosed space, through the nozzle 3 right above the substrate W, figure 18. Webster's II, New College Dictionary, 1995, defines a **mist** as "a colloidal suspension of a **liquid** in a gas." Hasebe fails to disclose or suggest removing excess solvent liquid from from the region above the substrate within the chamber to form a **reduced droplet** carrier-solvent mixture. Therefore, the mist in Hasebe would likely deposit droplets of liquid solvent

onto the substrate. Hasebe fails to recognize the negative effects of solvent droplets onto the polymer film, and thus, clearly lacks any motivation to modify in order to solve this problem.

The rejection asserts that it would have been obvious to remove excess solvent from solvent reservoir 31f, however, claim 16, as amended, requires that the excess solvent from the region above the substrate be removed. Clearly, the liquid solvent in 31f is below the substrate and claim 16 requires that the liquid solvent above the substrate be removed to prevent the excess liquid solvent from dropping onto the polymer layer on the substrate.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant respectfully request the withdrawal of the rejection of claims 16, 25-26, and 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Hasebe et al. (U.S. 5,658,615).

Claims 16, 20-21, and 23-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hasebe* in view of Batchelder (U.S. 5,472,502) hereinafter "*Batchelder*". In light of the amendment and in view of the above remarks, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Batchelder is introduced to provide the feature of a showerhead, but at least fails to disclose or suggest a means for **removing excess solvent liquid from the region above the substrate within the chamber** to form a **reduced droplet** carrier-solvent vapor mixture; nor **injecting the reduced droplet carrier-solvent vapor mixture into the coating area**, nor wherein the reduced droplet carrier-solvent mixture helps **prevent excess solvent from**

dropping on the substrate. Similarly, Batchelder fails to disclose or suggest removing excess solvent liquid from the carrier-solvent vapor mixture to form a **reduced droplet** carrier-solvent mixture. Batchelder also fails to recognize the negative effects of solvent droplets onto the polymer film, and thus, clearly lacks any motivation to modify to solve this problem. Batchelder discloses an embodiment that provides a large amount of solvent vapor through the showerhead, col. 7, lines 4-7. Batchelder fails to remedy all the deficiencies of Hasebe, nor would a skilled artisan be motivated to combine or modify these references to provide a means for **removing excess solvent liquid from the region above the substrate within the chamber.**

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant respectfully request the withdrawal of the rejection of claims 16, 20-21, and 23-31 under 35 U.S.C. § 103(a) as being unpatentable over *Hasebe* in view of Batchelder (U.S. 5,472,502).

Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hasebe* in view of *Batchelder* as applied to claim 16, and further in view of Gurer et al.(U.S. 6,027,760) hereinafter "*Gurer*". In light of the amendment and in view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Gurer is introduced to disclose the use of a sensor, however, the sensor in Gurer is a solvent-vapor sensor, and not the solvent liquid level sensor of claim 17. Furthermore, the functions of the two sensors also appear to be distinctly different. The Gurer sensor appears to be used to measure the solvent vapor concentrations so that the solvent saturation concentrations in the chamber can be controlled. In contrast, the sensor of claim 17 is used to measure the presence of excess liquid solvent so that the excess can be vaporized or removed, so that the excess solvent would not drip onto the substrate.

Gurer also fails to remedy the deficiencies of Hasebe and Batchelder and fails to disclose or suggest a means for **removing excess solvent liquid from the region above the substrate within the chamber** to form a **reduced droplet** carrier-solvent vapor mixture.

Applicant respectfully request the withdrawal of the rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over *Hasebe* in view of *Batchelder* as applied to claim 16, and further in view of Gurer et al.(U.S. 6,027,760).

CONCLUSION

Applicants respectfully submit that in view of the amendments and arguments set forth herein, the rejections herein have been overcome. Accordingly, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Neal Berezny or Michael A. Bernadicou at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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